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Thoracic Outlet Syndrome: A Unique Presentation of a Primary Intrathoracic Goiter

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Introduction

- Primary and secondary intrathoracic goiters (P-ITGs and S-ITGs, respectively) account for up to 5.8% of mediastinal masses(1).
- Unlike S-ITGs, P-ITGs are structurally distinct from the cervical thyroid gland and receive their blood supply from mediastinal vessels while only representing 0.2%-1.0% of all ITGs(2).
- Although most remain asymptomatic, symptoms typically arise in relation to compression of the esophagus, trachea, or superior vena cava (SVC)(3).
- No ITGs have been reported as a source of thoracic outlet syndrome.
- We report a case of a P-ITG causing right-sided thoracic outlet syndrome.

Case Presentation

- 43-year-old female presented with a 1-month history of right arm pain, paresthesia, and weakness with right shoulder pain.
- Patient sent to physical therapy prior to imaging studies, without relief of symptoms.
- Initial imaging, with right shoulder XR (Figure 1), revealed a superior mediastinal mass.
- Chest CT with contrast (Figure 2) confirmed a heterogeneous mass within the superior, anterior mediastinum, measuring 12.1 cm x 7.8 cm x 8.8 cm and extending into the right chest apex.
- Severe compression of the SVC, distal trachea, and main-stem bronchus, with mass effect of the right brachiocephalic vein and artery was noted.
- Fine needle aspiration via endobronchial ultrasound and percutaneous CT-guided core biopsy (Figure 3) of the mass were consistent with benign thyroid tissue.
- Given the massive size and significant compression of surrounding structures, a median sternotomy was completed, with intraoperative findings consistent with imaging results (Figure 5).
- Final pathology: multinodular goiter with focal Hurthle cell change, negative for malignancy, thymic tissue with appropriate age related changes.
- Her thoracic outlet syndrome associated symptoms resolved following surgery.

Figure 1. Initial Right Shoulder XR (10/19/16)

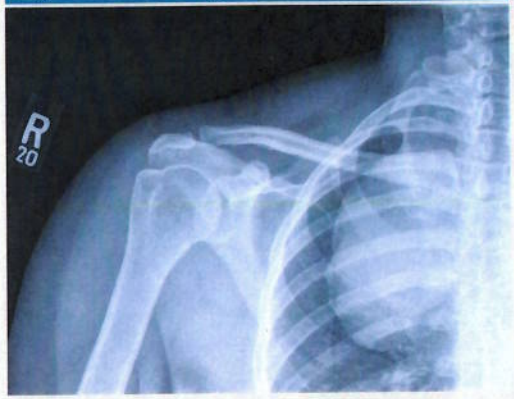


Figure 2. CT Chest with Contrast (10/20/16)

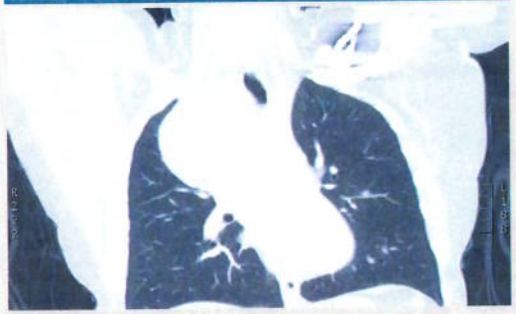


Figure 3. Mediastinal FNA via EBUS and CT-guided core needle biopsy (10/21/16 & 10/26/16)

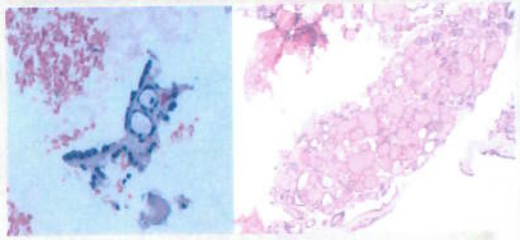
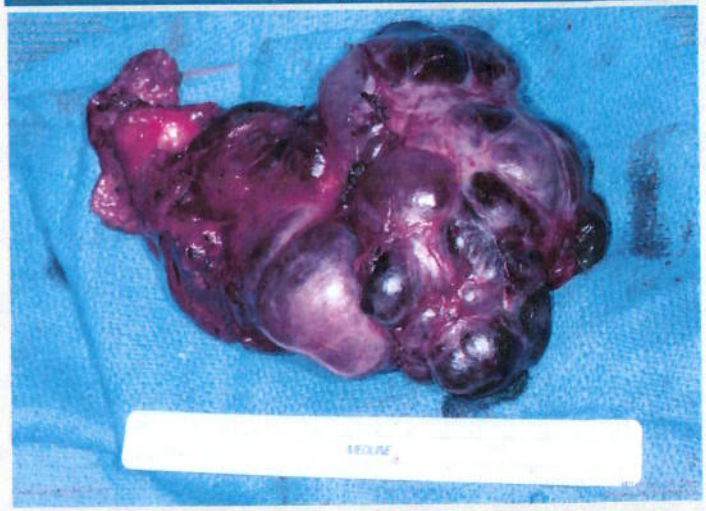


Figure 5. Gross surgical specimens (10/27/16)-12x10.5x5cm, 369 grams



Discussion/Conclusions

- P-ITGs are known to progress in size over time, and can be relatively large at time of diagnosis due to lack of symptoms until significant compression of adjacent structures occur(2).
- The most common symptoms are cough, dyspnea, stridor, dysphagia, and symptoms related to Horner's syndrome and SVC syndrome (4).
- To our knowledge this is the first reported case of a P-ITG causing thoracic outlet syndrome.
- Therefore, it would be reasonable to add P-ITGs to the list of potential causes of this obstructive condition.

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